

PROFILE PUBLICATIONS

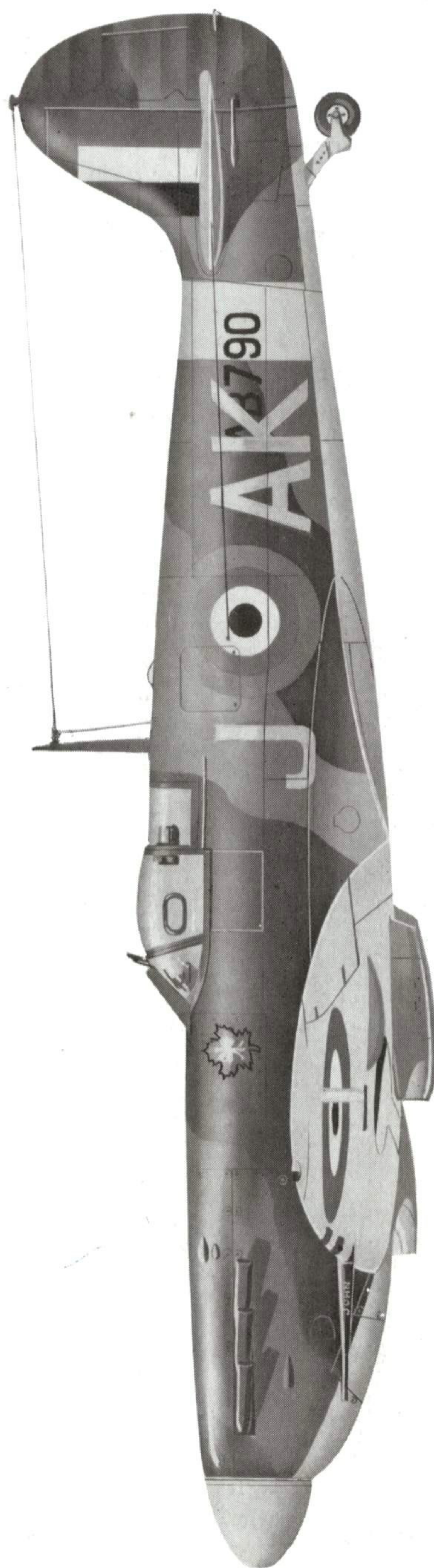
The Supermarine Spitfire V Series

NUMBER

166

RETAIL

UNITED KINGDOM 3 99 POUNDS
UNITED STATES & CANADA 10.00 DOLLARS



THOMAS

Starboard (right hand)
cannon marking.

Wg. Cdr.'s pennant.

I.F.F. aerials
not always
fitted.

Wg. Cdr. Kent's personal
insignia, indicating his
Canadian nationality and
Polish unit.

Port (left
hand) cannon
marking.

SUPERMARINE SPITFIRE VB, AB790,
flown by Wing Commander John A. Kent
as Wing Leader of the Polish Wing at
Northolt, Middlesex, U.K. in June, 1941.
At that time the Wing was made up of
Nos. 303 "Kosciuszko", 308 "Krakowski"
and 315 "Deblinski" Squadrons.

© JAMES GOULDING

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FT.

The H.F. wire aerial was later replaced by a V.H.F. aerial utilising the same mast.

The Supermarine Spitfire V Series



by Ted Hooton

Fine flying study of BL479, a highly-polished Mk. VB of No. 316 (Polish) Sqn. in 1943.

(Photo: Charles E. Brown)

With the exception of the first two variants of the Spitfire (the Marks I and II, described in *Profile* No. 41), it is a remarkable fact that the most used and, generally, the most successful variants of this fighter were those originally developed as "stop gap" types. During World War II it was not always possible to allow time for development and production of the best aircraft, and under the pressure of combat conditions, short-cuts were inevitable. Such was the case with the Spitfire Mk. V.

During the Battle of Britain in 1940 the Spitfire I had barely maintained superiority over the German Messerschmitt Bf 109E, and the few Spitfire II's that took part had but a small increase in performance over the Mk. I. Therefore, in October 1940, the Air Staff of the Royal Air Force turned to the question of a replacement aircraft. The intended successor to the earlier Marks was the Mk. III, which had been under development since 1939, and had already flown. This aircraft had a number of significant features including a new wing design, a retractable tailwheel, and a Rolls Royce Merlin XX engine. As a first step 1,120 Mk. III's were ordered in October.

However, it was realized that it would take some time to tool up for production of the new aircraft and thus, as an interim measure, Rolls-Royce were asked to install the new Merlin 45 engine into the basic Mk. I airframe to produce the Spitfire V (the Mk. IV designation having already been allocated to a Griffon-engined version of the Mk. III). There was no true prototype of the Mk. V but two converted Mk. Is, N3053 and R6889, were used for the initial period of flight testing. Subsequently, further conversions were ordered, and the first Spitfire V to enter service (a Mk. VB, R6923, originally a Mk. IB), was delivered to No. 92 Squadron early in December.

As with all Spitfires (except the IIc) the suffix letter indicated the type of wing, the "A" wing having eight .303 Browning machine guns, and the "B" two 20 mm. cannon and four machine guns. At that time the cannon was a subject of lively con-

troversy in Fighter Command because of a prolonged history of gun stoppages, but modifications had been made, and No. 92 Squadron's early successes with their existing IB's and the new VB convinced the Air Staff that the VB, rather than the VA, should be built in quantity. Only ninety-four of the latter variant were produced.

In the course of events the Spitfire III was to be cancelled, and some of the special features of that version were incorporated into the Mk. V, of which a total of 6,464 fighter versions were built between 1941 and 1943. In addition, over one hundred were converted from Mk. I airframes. The aircraft saw service with more than one hundred and forty squadrons of the R.A.F. and was supplied to nine foreign countries, including the United States. It was employed on all battle fronts during the war and, in many cases, was instrumental in turning the tide of the air war in favour of the Allied forces.

1941—R.A.F. ON THE OFFENSIVE

In the first few months of 1941, the Spitfire V went into service with Nos. 41, 54, 64, and 91 Squadrons. During May, the first Messerschmitt Bf 109F was encountered in combat, and the Spitfire V was publicly announced. By this time production was under way; Supermarine, having already completed seventy-eight in the R-serial batch, were beginning on the first complete run of 450 aircraft, starting with W3109. Many of this batch incorporated a new, integral, bullet-proof windscreen originally planned for the Spitfire III. The Castle Bromwich factory, having completed eighty Mk. V's in the P series, was beginning a complete run of 500 aircraft from AB778.

These aircraft were rapidly introduced into the squadrons, and by the summer the R.A.F. was on the offensive over the Low Countries of Europe. The offensive took the form of fighter sweeps and daylight bombing by Blenheims and Stirlings, the Spitfire V's providing escort cover. By September, twenty-seven squadrons were equipped with the Mk. VB



No. 92 Squadron, R.A.F., early in 1941. Aircraft QJ-J in the foreground is Mk. VB, R7161, originally a Mk. I presentation aircraft dedicated "Mombasa". (Photo: Imp. War Mus.)

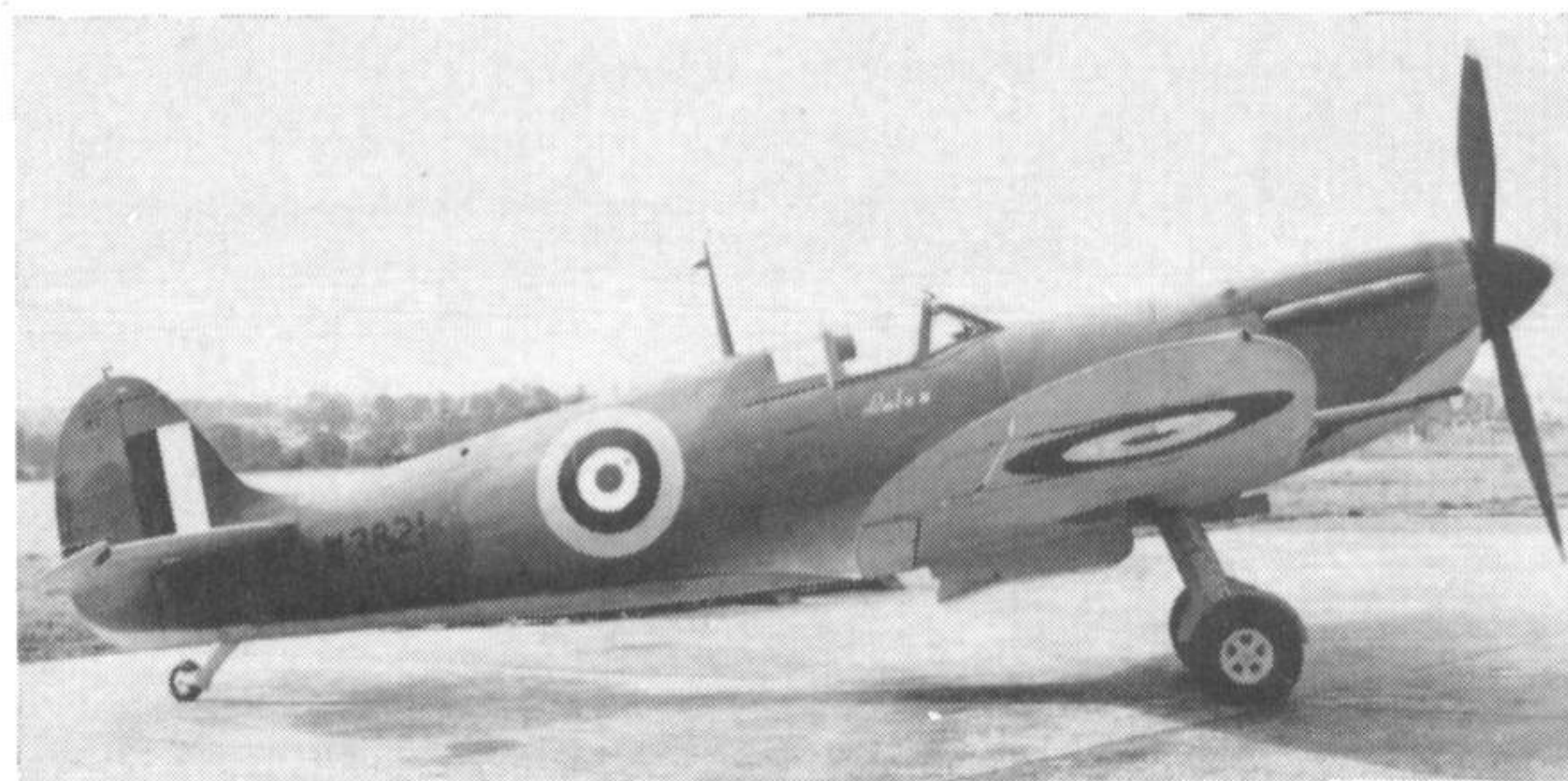
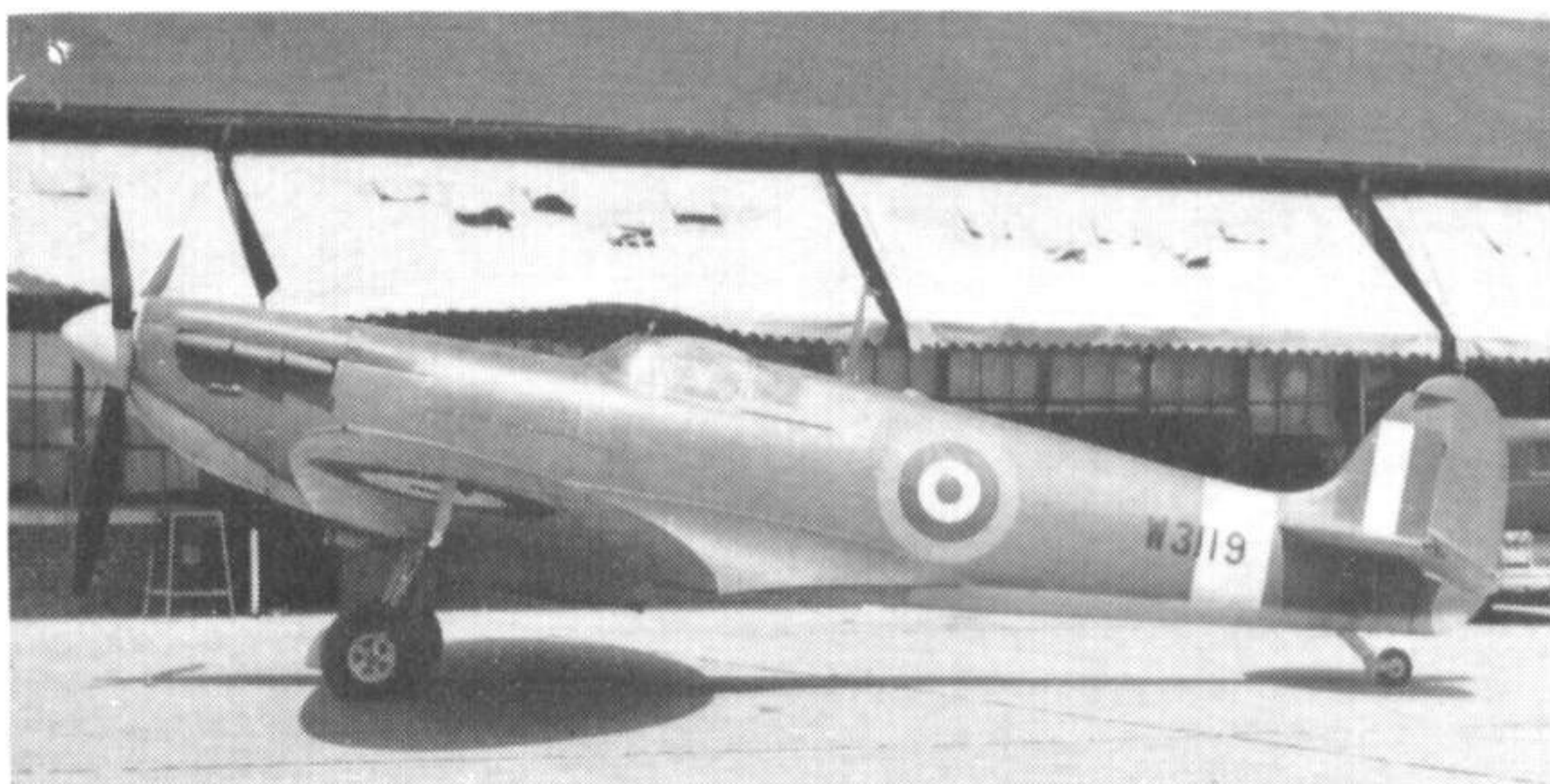
and a few VA's, and in December this figure rose to forty-six, including fifteen Commonwealth and Allied squadrons, plus Nos. 71 and 121 "Eagle" Squadrons, composed of American volunteers.

The original design of the Spitfire had been as a short-range home-defence fighter. The sweeps and escort operations, however, required a much longer range capability, and in 1941 the first trials were made with external, jettisonable fuel tanks. These tanks were of the "slipper" type fitting flush to the underside of the fuselage. After some initial jettisoning problems were overcome, both 30 and 45 gallon tanks were built in large quantities for the Mk. V and subsequent variants. Another concern was the problem of the high aileron-stick forces that were necessary to bank the aircraft at high speeds during combat. After many experiments with aileron servotabs, revised aerofoil shapes, and months of wind tunnel testing at the National Physics Laboratory, the problem was rather simply resolved early in 1941, by replacing the original fabric covering with metal. Also a sharper trailing edge was incorporated, and the new ailerons were introduced on the Spitfire V production lines by the summer, as well as being retroactively fitted to earlier aircraft.

The first models of the Spitfire VC came off the

Supermarine production line later in the year. The "C" or universal wing was originally designed in 1940 for the Mk. III to give a choice of armament between "A" type, "B" type, or a new combination of four 20 mm. cannon. Actually, most Mk. VC's in service retained the "B" type armament, the outer cannon positions being covered by short fairing stubs, but the new wing did allow for 120 shells for each cannon, instead of the previous number of 60. An additional feature was a strengthened undercarriage with the wheels set two inches further forward. This helped to reduce a common Spitfire fault: nosing over when taxiing on soft or rough airfields. The new wing was tested on a Mk. VB, W3237, which was then redesignated as a Mk. III, but with the cancellation of that version, the wing became available for the Spitfire V.

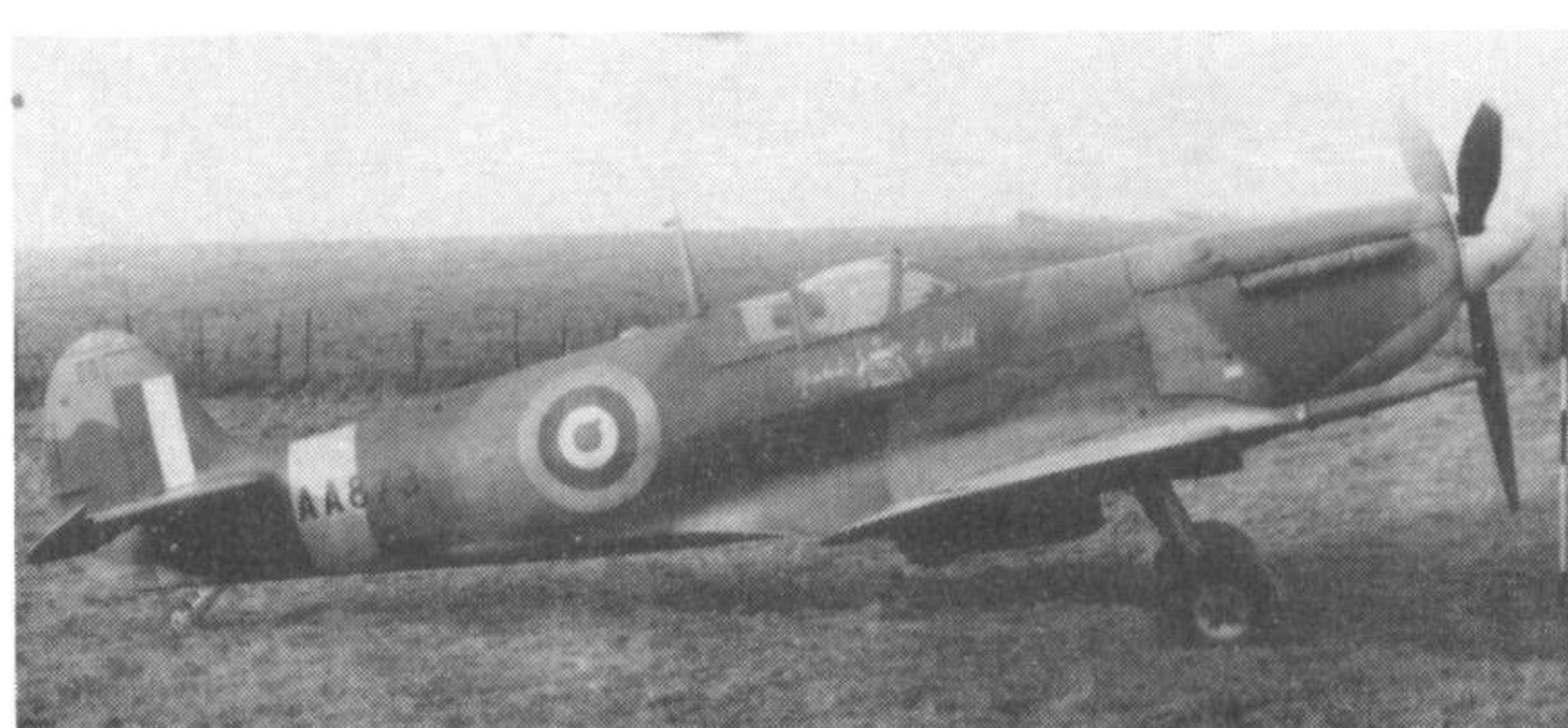
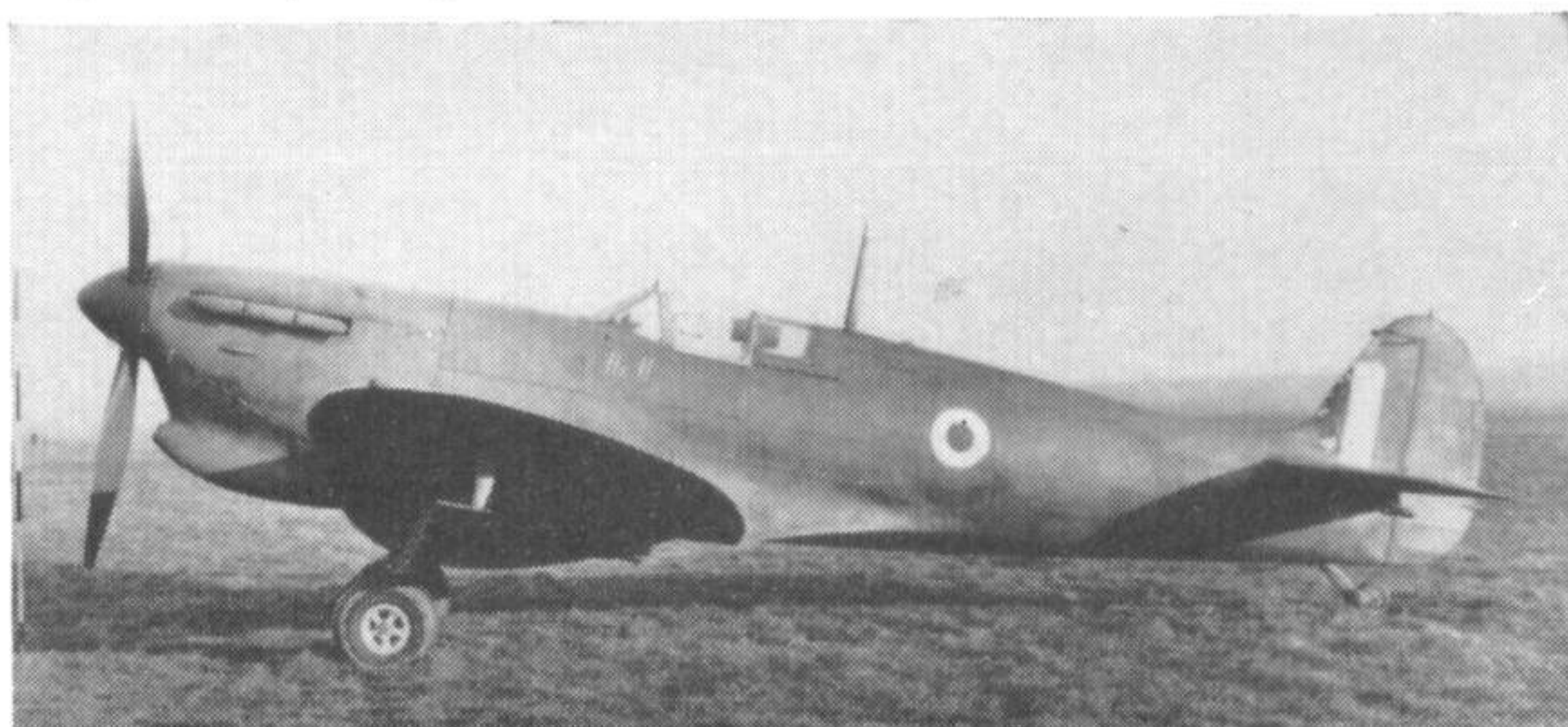
An early Mk. VC, A4963, was shipped to the U.S.A. in 1942. However, it was not the first to go because, at the request of General Arnold of the U.S.A.A.F., two VA's (R7347 and W3119) were delivered to Wright Field during the summer of 1941. In December, W3119 was transferred to the NACA at Langley for detailed measurement of its flying qualities, and this was followed by an installation of special engine exhaust stacks for test purposes.



(Left) Spitfire VA, W3119, in front of Hangar No. 4, Wright Field, Ohio in July 1941. (Photo: Official U.S. Air Force). (Right) An early production Spitfire VB, W3821 "Pemba III", built by Supermarine. (Photo: Imp. War Mus.)

(Left) First experimental installation of a tropical filter on Mk. VA X4922 in December 1941.

(Right) The first production Spitfire VC, AA873, with four cannon installed. (Photos: Imp. War Mus.)





(Left) A Supermarine-built Mk. VB, YO-E "Jersey I" of No. 401 (Canadian) Squadron in the winter of 1941-42. (Photo: Canadian Dept. of National Defence). (Right) A Spitfire VB of No. 122 Squadron in 1942; the aircraft is BM252 "Bombay City". (Photo: Imp. War Mus.)

1942—THE FOCKE WULF MENACE

By the beginning of 1942, over 1,700 Spitfire V's had been built. In January, Westland Aircraft built their first Mk. VB, AR318, and shortly afterwards, Supermarine phased out the VB in favour of the VC. Castle Bromwich followed suit in the autumn when they were producing eight to ten aircraft per day. Over 3,300 Mk. V's were built in 1942.

The early months of this year were marked by a series of disasters suffered by British forces in the Pacific, the North African desert, and the English Channel; all these events having an effect on the development and use of the Spitfire.

Prior to September 1941 the Spitfire's main opponent was the Messerschmitt Bf 109F. Although this aircraft had slightly superior fighting qualities above 20,000 feet, its armament was light, and generally the Spitfire V was the better of the two aircraft. Then, in September, the first of the new Focke-Wulf Fw190's were met in combat over France. With the exception of the smaller turning radius of the Spitfire, the Fw 190 was superior in all other respects. In February 1942, the Germans sailed their three capital ships, the *Scharnhorst*, *Gneisenau* and *Prinz Eugen* through the Channel to return to Germany. During the resulting air battle the Spitfires tangled with large numbers of Fw 190's and from then on there was absolutely no doubt that the Spitfire was outclassed by the *Luftwaffe's* new aircraft. The answer was the Spitfire Mk. IX, developed as another "stop-gap" using the Mk. VC airframe with the more powerful Merlin 61 engine. However, the Mk. IX took time to bring into service in large enough numbers, and by June there were more squadrons of Mk. V's in service than at any other period of the war: fifty-nine in the United Kingdom, and seven in the Mediterranean area.

In July Supermarine built their last VC, BS305, and in August forty-two squadrons of Spitfire V's were among the R.A.F. forces covering the first large-scale Allied landing on the French coast at Dieppe. During this raid the first U.S.A.A.F. Spitfires were in action;

those of the 307th Squadron of the 31st Fighter Group. With the 308th and 309th Squadrons they had arrived in England in June and were quickly followed by the 2nd, 4th and 5th Squadrons of the 52nd F.G., all these units equipping with the Mk. VB. In September the three "Eagle" squadrons of the R.A.F. were transferred to the 4th F.G., and this Group retained its Spitfire V's until early 1943. More American units arrived in 1942. In October the 67th Observation Group reformed at Membury and, by the summer of 1943, all of their four squadrons (12th, 107th, 109th and 153rd) were using the Mk. VB. Finally, the 13th Reconnaissance Squadron of the 8th Air Force received a few for training purposes.

The Royal Navy was also supplied with VB's during 1942. These were intended for pilot training, some of the aircraft being modified by the addition of arrester hooks.

The Japanese campaigns in the Pacific resulted in the resurrection of the Spitfire floatplane project which originally dated back to early 1940. During 1942, new floats were designed by Supermarine and built by Folland, being fitted to a Mk. VB, W3760. After fitment of additional fin area, a small diameter four-blade propeller, and a tropical-type carburettor intake, the aircraft was a success. Folland then modified an additional two aircraft, EP751 and EP754, which were both shipped overseas to Alexandria, Egypt, where they were flown but saw no action.

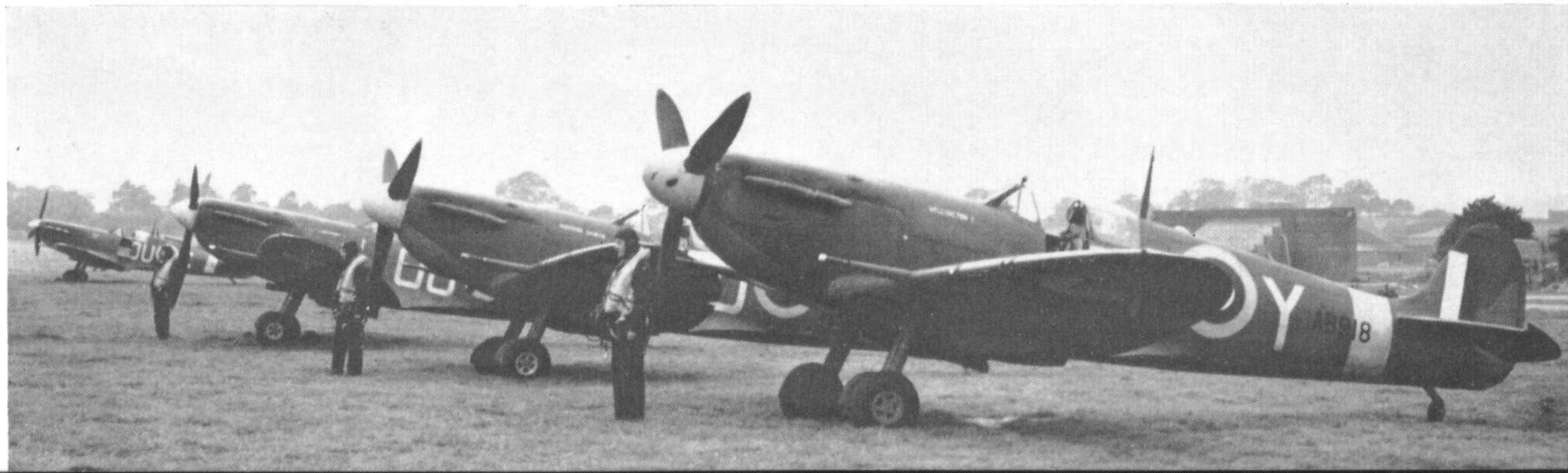
Other modifications were the fitting of target-towing hooks to some aircraft (e.g. W3234 and AB789, both VB's of No. 315 Squadron). In addition to towing targets, the R.A.E. at Farnborough used a VB as a tug for a Hotspur glider. Later, Flight Refuelling Ltd. reversed the rôle when a Wellington was used to tow a Spitfire. This experiment was to test the practicability of long-range towing as a method for fast reinforcement of overseas bases.

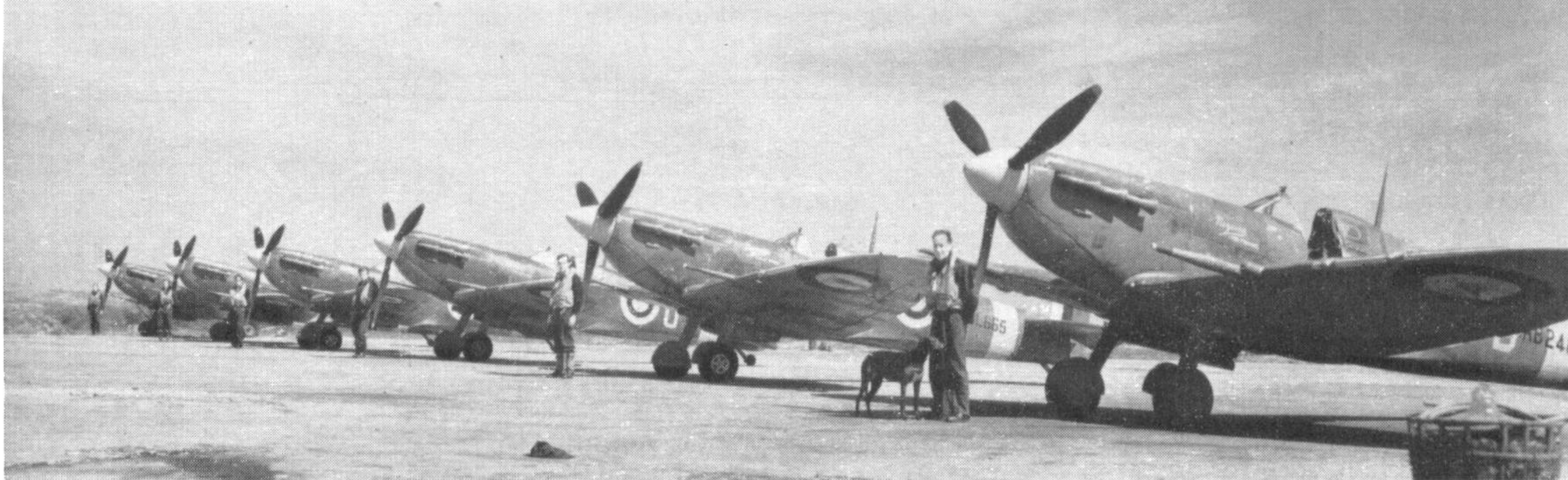
OVERSEAS—1942 TO 1944

As long as there was a serious threat of German

Spitfire VB's of No. 485 (New Zealand) Squadron; note the blunt spinner of AB918 "Wellington I" in the foreground.

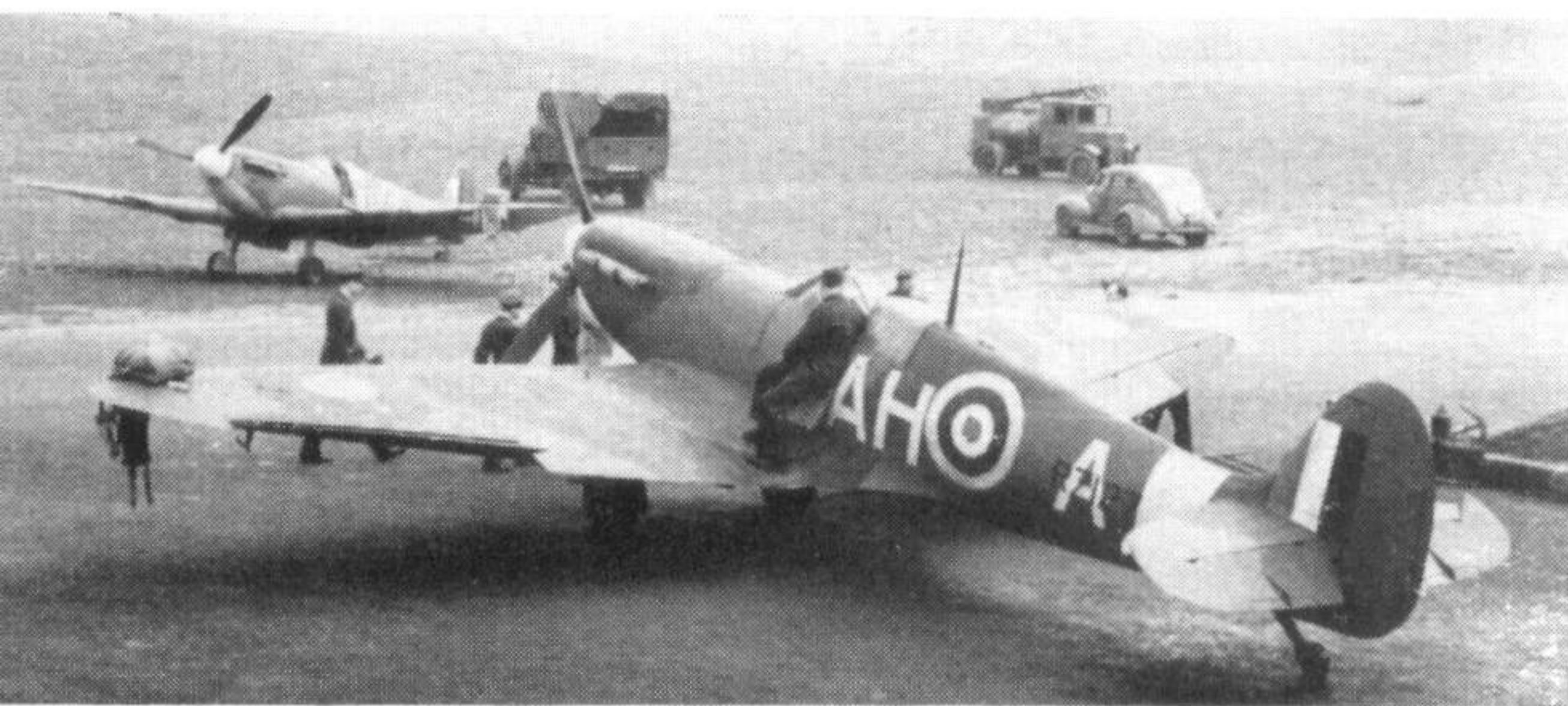
(Photo: Imp. War Mus.)





Early Mk. Vc AB248 in foreground of a line-up of No. 91 (Nigerian) Sqn. in spring, 1942.

(Photo: Imp. War Mus.)



No. 332 (Norwegian) Squadron dispersal early in 1942; by December 1941 forty-six R.A.F. squadrons were equipped with the Spitfire V, including fifteen Commonwealth and Allied squadrons as well as Nos. 71 and 121 "Eagle" Squadrons, composed of American volunteers. In the foreground is Mk. Vc R7127, converted from a Mk. 1A.

(Photo: Flight International)

invasion of England, the Spitfire was retained for home defence. However, it was apparent in 1941 that the aircraft would eventually be required overseas. At that time the desert war in North Africa was the main concern, and the problems of sand ingestion causing engine wear had been well recognized. Therefore, a Mk. Vc, X4922, was experimentally fitted with a Vokes tropical air filter over the carburettor intake. This modification was later applied to production aircraft intended for overseas operations, the first aircraft being AB320, a Supermarine-built VB (trop) which flew early in 1942, and most Mk. V's built after July were "tropicalised". Therefore, the great majority of Mk. Vc's were thus equipped.

In March, enemy air attacks on the island of Malta reached such a pitch that Spitfires were essential to combat the *Luftwaffe* and *Regia Aeronautica*. Under the circumstances it was necessary to fly the aircraft in from carriers, and, with new 90 gallon slipper tanks, it was possible to extend their range to the maximum. During March thirty-four Mk. V's were flown in to supplement the few remaining Hurricanes of Nos. 126 and 185 Squadrons. Reinforcements followed in April and May, when the American carrier *Wasp* joined *H.M.S. Eagle* in despatching one hundred and twenty-six aircraft. These included three new squadrons for the island's defence—Nos. 249, 601 and 603—plus extra aircraft for the squadrons already there. Both the Mk. VB and Vc were flown in and these supply missions were to continue until November.

Meanwhile, in the desert, the 8th Army was retreating into Egypt and No. 145 Squadron was transferred there from England. Their aircraft were flown in from Takoradi, West Africa, and by 1st June

they were in action, being supported that month by No. 601 Squadron who flew in from Malta. On the island itself, No. 603 Squadron re-equipped with Beaufighters, its Spitfires being handed over to two new squadrons (Nos. 229 and 1435, the latter being a Flight number, although the unit operated as a squadron until the end of the war). In August, No. 92 Squadron was transferred to Egypt from England and joined Nos. 145 and 601 in 244 Fighter Wing. These squadrons found themselves opposed by the Bf 109F (and later the G model) and the Macchi C.202. Since most combat was at low altitudes, the Spitfires had little trouble with the 109F, although the 109G was somewhat faster than the Spitfire V. Against the M.C.202 it seemed that the two aircraft were fairly evenly matched; the Italian, while superior in climb at low altitudes, was seriously under-gunned.

One essential element of the desert air war was the repair and modification activities of 103 Maintenance



EP257, a Spitfire VB Tropical probably of No. 229 Sqn., on Malta in 1942.

(Photo: Imp. War Mus.)

A group of Beaufighter and Spitfire pilots on Malta in October 1942; second from right is Sqn. Ldr. M. M. Stephens, C.O. of No. 229 Sqn. The Spitfire Vc is the aircraft of Wg.-Cdr. P. P. Hanks.

(Photo: Imp. War Mus.)

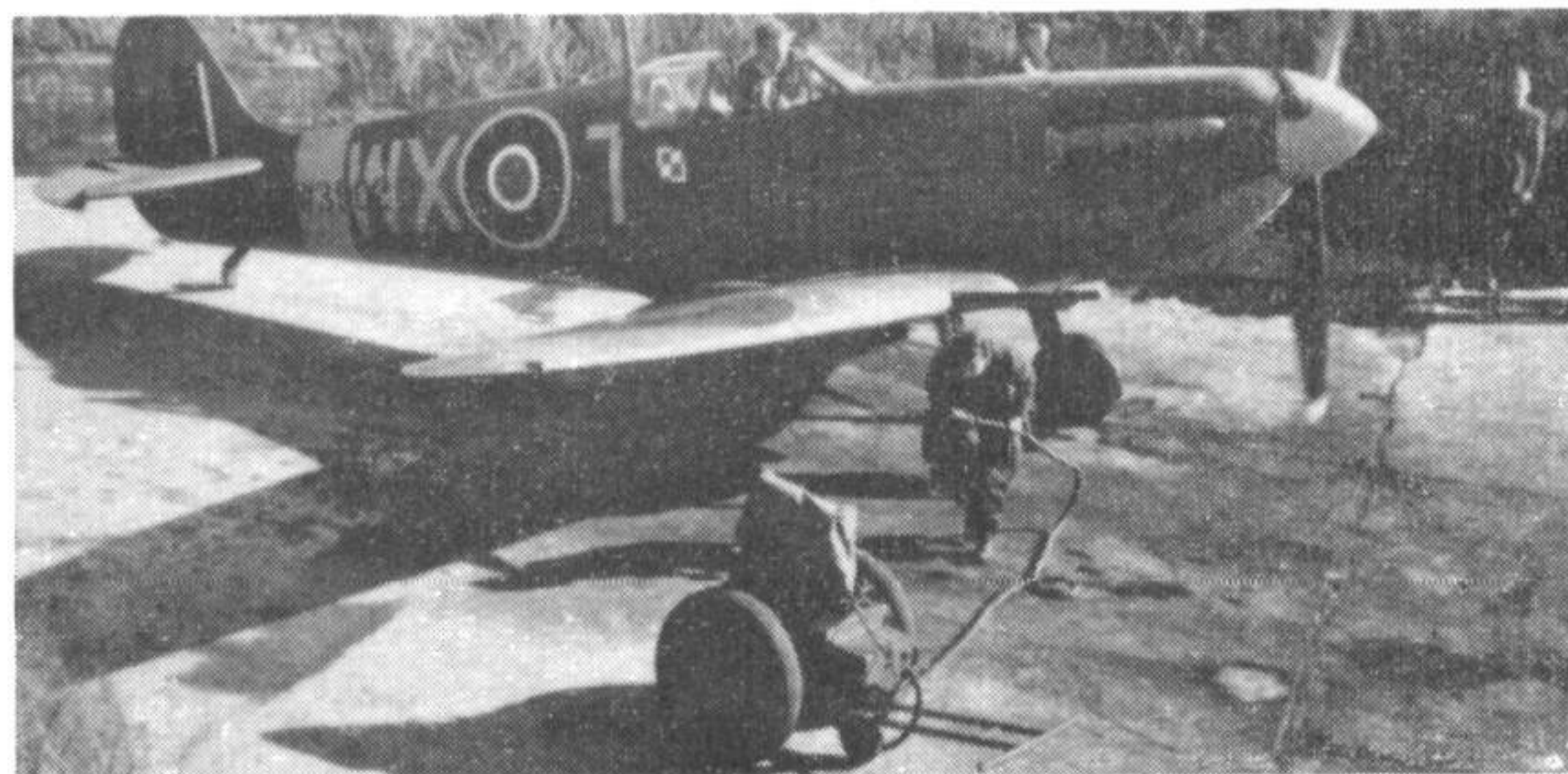


Unit at Aboukir. Besides turning out 140 reconditioned aircraft per month, they modified many aircraft for special duties, including Spitfire V's. The tropical filters then fitted were adequate but reduced the aircraft's maximum speed. To reduce drag and improve filtering, 103 M.U. designed a new and smaller unit that proved very successful and was fitted to many Mk. V's. To combat the high-flying Junkers Ju 86P reconnaissance aircraft, three Spitfire Vc's were modified by reducing the weight in every way possible (including reduction of the armament to two .5 inch machine guns) and improving the performance by use of extended wingtips (locally built), a four-blade propeller, and modified carburettors. These aircraft (BP985, BR114 and BR234) were eventually successful against the Ju 86P but, at the altitudes above 40,000 feet, the physical strain on the pilots of the Special Performance Flight was rather severe. After the Spitfire VI arrived at Aboukir it was found that it did not have the required high-altitude performance, so one of the existing Mk. Vc's was further modified with a Merlin 61 engine and two 20 mm. cannon in place of the .5 inch machine guns.

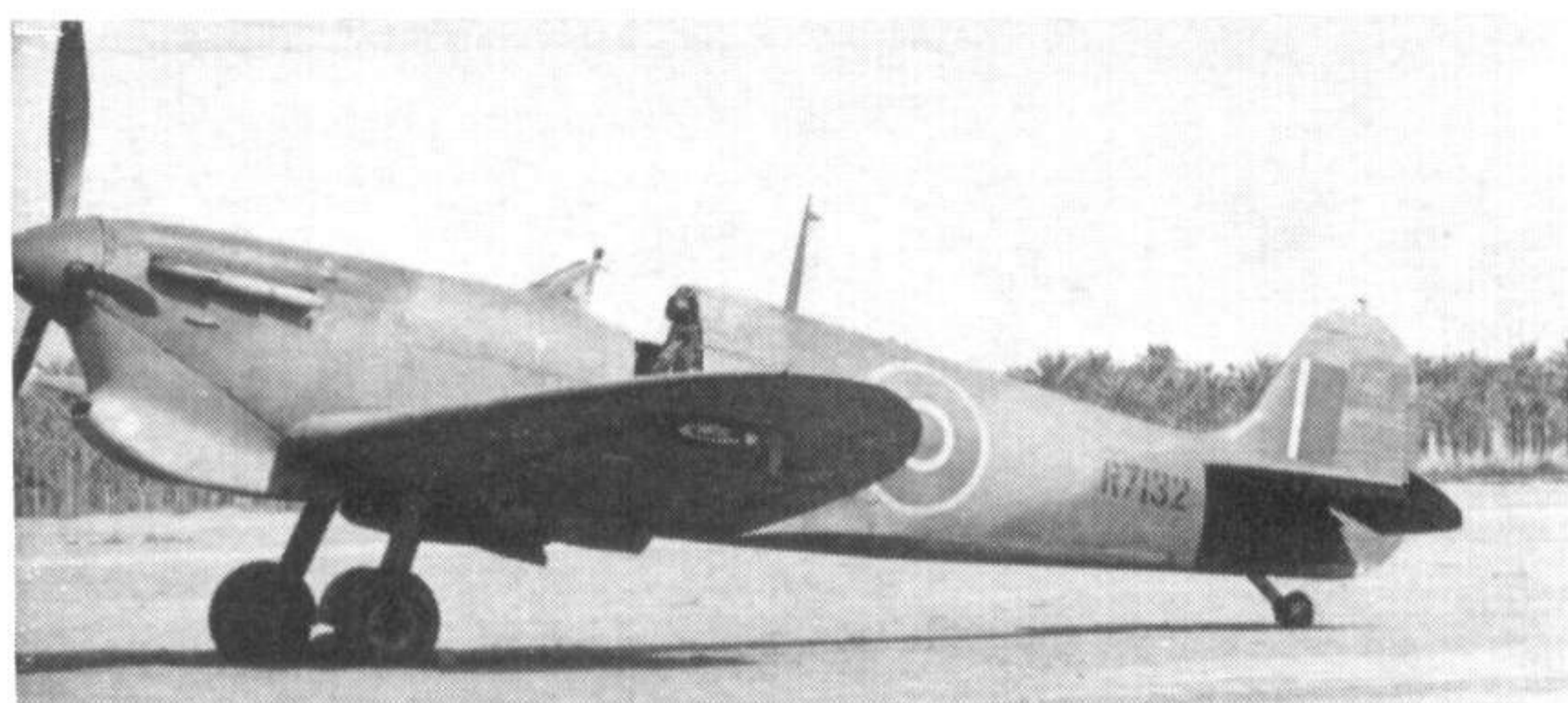
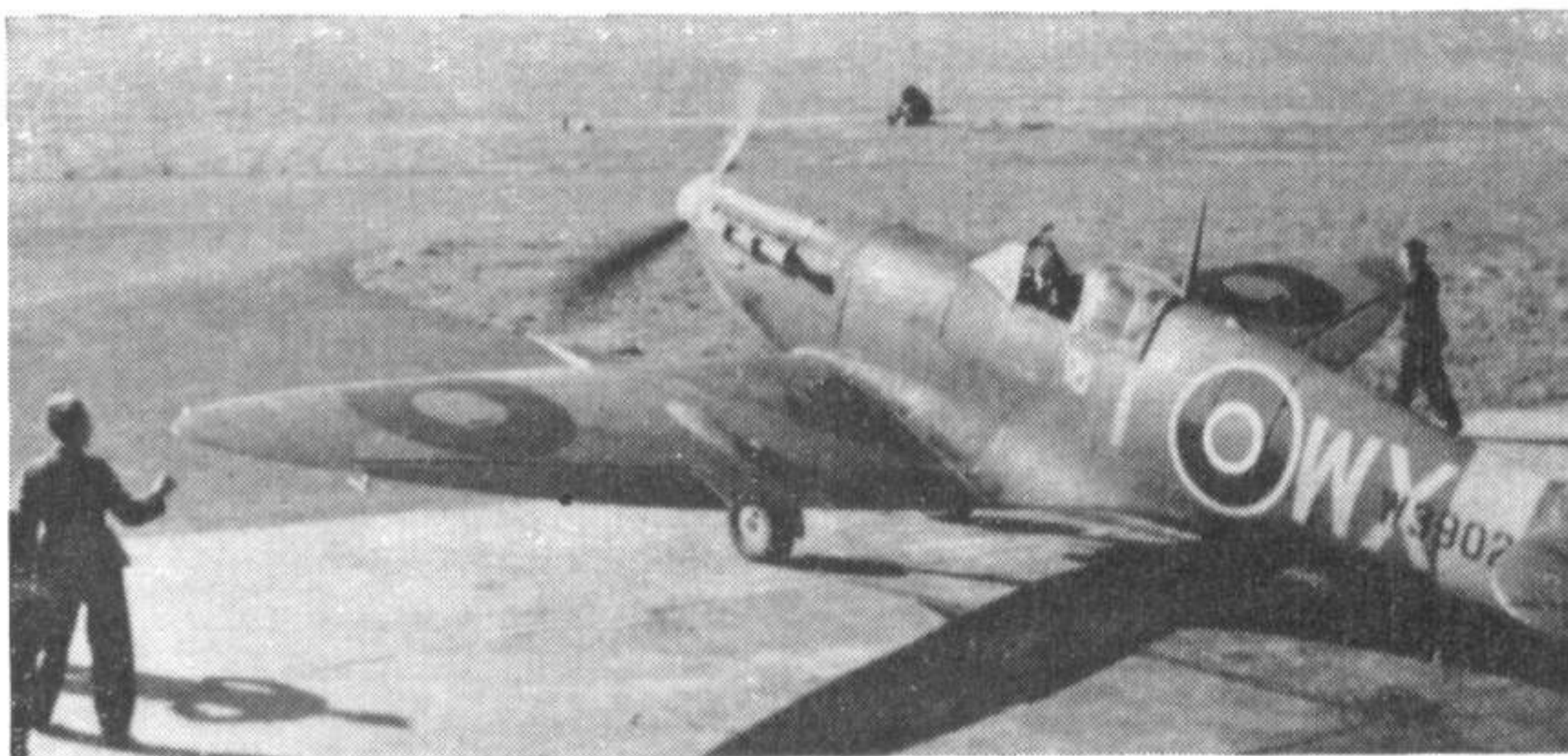
Clipped-wing Spitfires were also quite common in Egypt, 103 M.U. producing their own wooden tip-fairings, which were slightly more rounded than those used in the U.K. for the L.F.VB. For fighter-reconnaissance duties a number of VB's (e.g. EP878) were fitted with an oblique camera and in addition to the clipped-wing and cropped engine-supercharger blades, most fuselage and wing skin joints were taped over. A smooth camouflaged finish was then applied to achieve the maximum speed possible. These aircraft were used by No. 40 Squadron of the South African Air Force which moved forward with the 8th Army after their advance from El Alamein in November 1942.

In the same month British and American forces landed in Algeria and Morocco. The first Spitfires to land were of No. 81 Squadron, R.A.F., and from the 31st F.G., U.S.A.A.F., the 308th and 309th Squadrons. Their Mk. V's were soon joined by those of the 307th, and the three squadrons of the 52nd F.G., plus seven R.A.F. units. By December the Allies were in some difficulties; operating conditions were primitive and aircraft serviceability was low and, in addition, the strong German counteraction included the Fw 190's of the *Luftwaffe*.

To meet the Army's needs a number of Spitfires were modified as fighter bombers carrying one 250 lb. bomb under each wing. Also, to improve manoeuvrability, some American pilots removed one machine gun from each wing to reduce weight. (Local modifications were much in evidence in the Mediterranean; some Vc's in Malta had their 20 mm. cannon mounted in the outboard position rather than



Prominent among the squadrons whose personnel were expatriates from occupied countries were the Polish units; here, an aircraft of No. 302 "Poznanski" (Polish) Sqn. is prepared for a sortie. (Photos: J. B. Cynk)



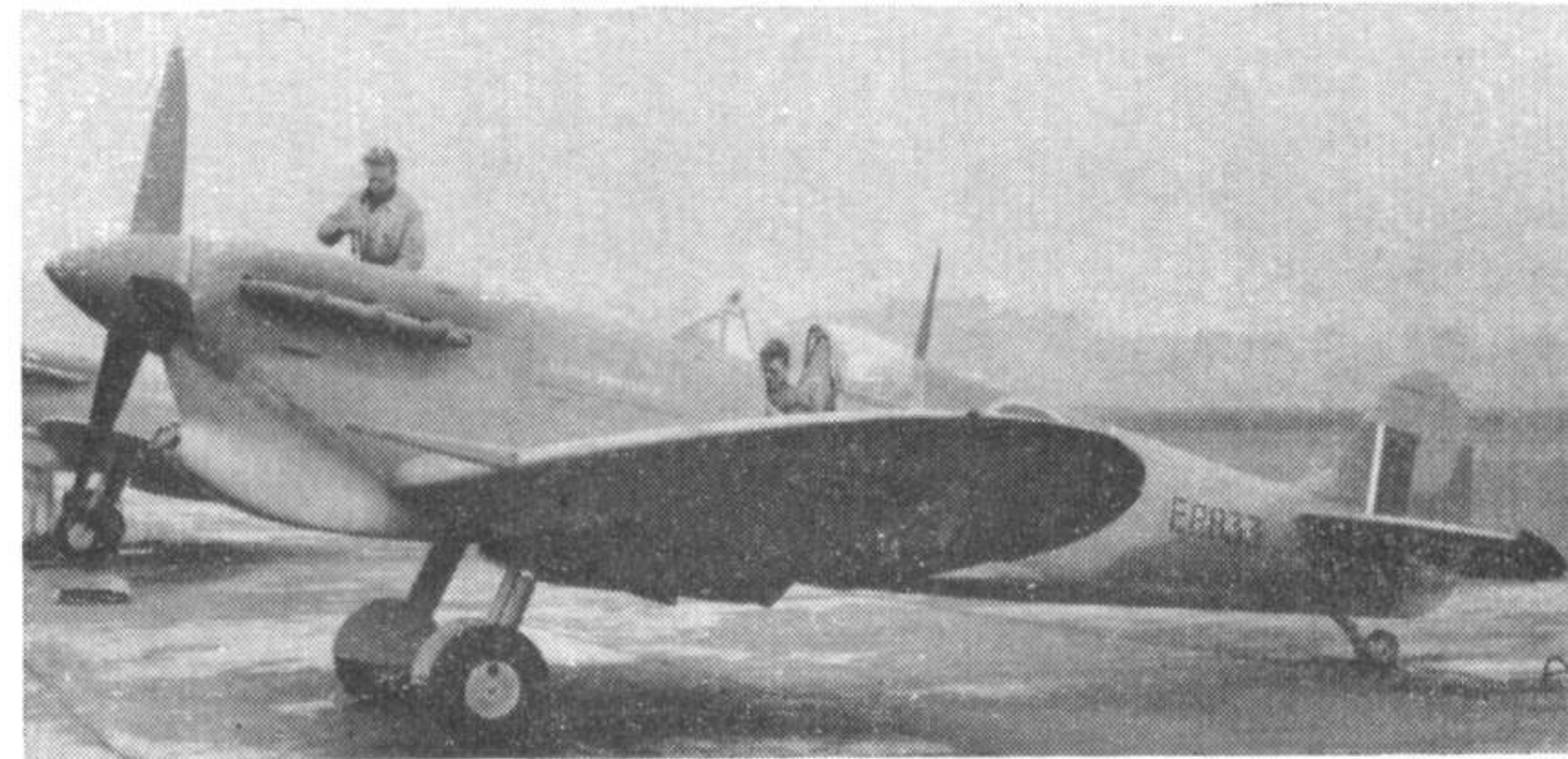
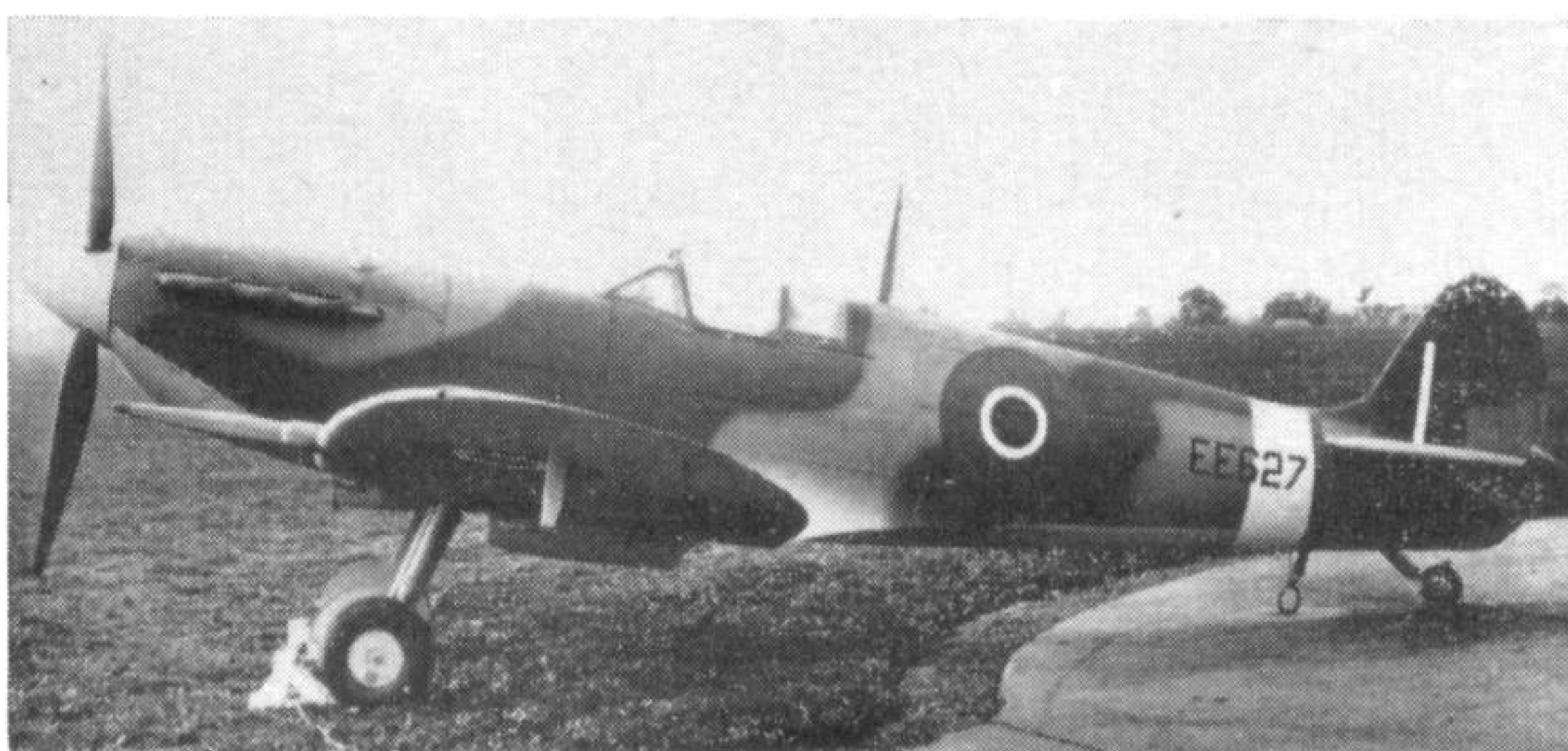
An unusual aircraft, R7132 was originally a Mk. IA, converted to Mk. VA standard, and finally tropicalised. It is seen here at Aboukir, Egypt. (Photo: T. P. M. Cooper-Slipper)



A late-production Spitfire Vc, MA859, on a delivery flight over Morocco; note the absence of a tropical filter. (Photo: Imp. War Mus.)

(Left) a Westland-built Mk. Vc, EE627, in Sept. 1942; and (right) a late-production Mk. VB Tropical, ER833 "Benue Province"

(Photos: Imp. War Mus.)



Spitfire V's with Abouqir filters in the Middle East. Two aircraft from No. 601 Sqn. are led by (foreground) Wg.-Cdr. I. R. "Widge" Gleed in AB502. A veteran of the early fighting in France and the Battle of Britain, Gleed had at least 15 victories to his credit when he failed to return from a fighter sweep on 16th April 1943.

(Photo: Imp. War Mus.)

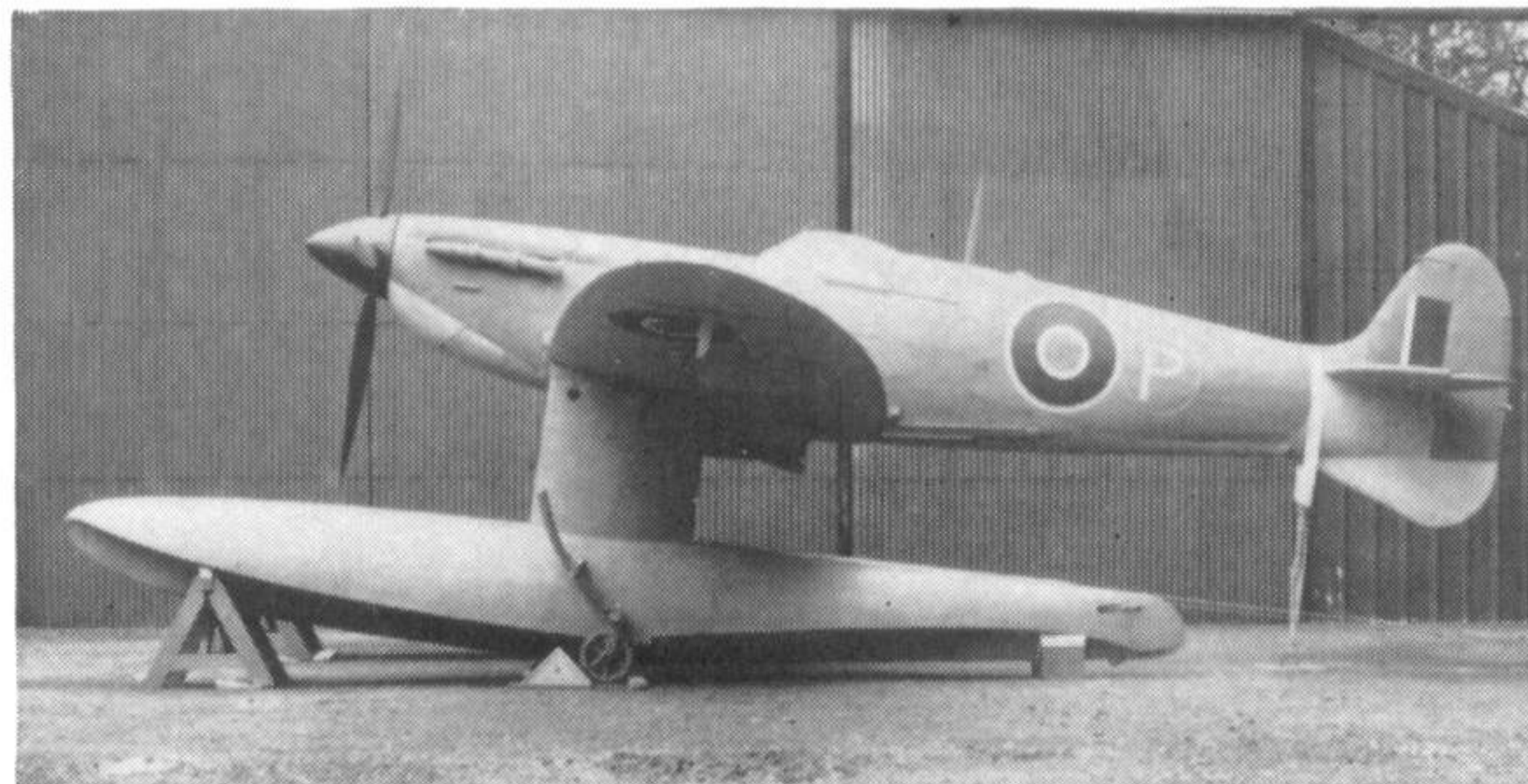


the normal inboard location).

In February the first Spitfire IX's arrived in North Africa although, when the German Army surrendered in North Africa in May, there were twenty-three R.A.F. squadrons of Spitfire V's in the Mediterranean area. During this month the 31st F.G. began to re-equip with the Spitfire VIII and IX although, like many R.A.F. squadrons in the area, they also retained some Mk. V's, the 307th squadron still using a few during the invasion of Italy in September.

To give U.S.A.A.F. pilots some operational training before joining their squadrons, the Fighter Training Center was organized at Berrachid, Morocco, early in 1943 with the P-38, P-40 and Spitfire V. The Spitfire flight had about a dozen aircraft, one of which was the personal aircraft of the chief instructor. This Spitfire was probably the most colourful one ever flown, being a brilliant blue overall with red and white stripes over the engine cowling!

The Mk. V was in constant use through the Sicilian campaign and the invasion of Italy, although used more as a ground support aircraft. In the case of No. 2 Squadron S.A.A.F. their Mk. Vc fighter-bombers mounted the full complement of four 20 mm. cannon. By 1944 the Polish, Greek, and French squadrons of the R.A.F. were using the aircraft, and in August of that year No. 352 (Jugoslav) Squadron equipped with the Mk. Vc. Another unit was that of the Free French Air Force, *Groupe de Chasse G.C.II/7*. From December 1943 the R.A.F. squadrons began to



The prototype Spitfire V floatplane W3760 prior to being fitted with increased dorsal fin area. (Photo: Imp. War Mus.)

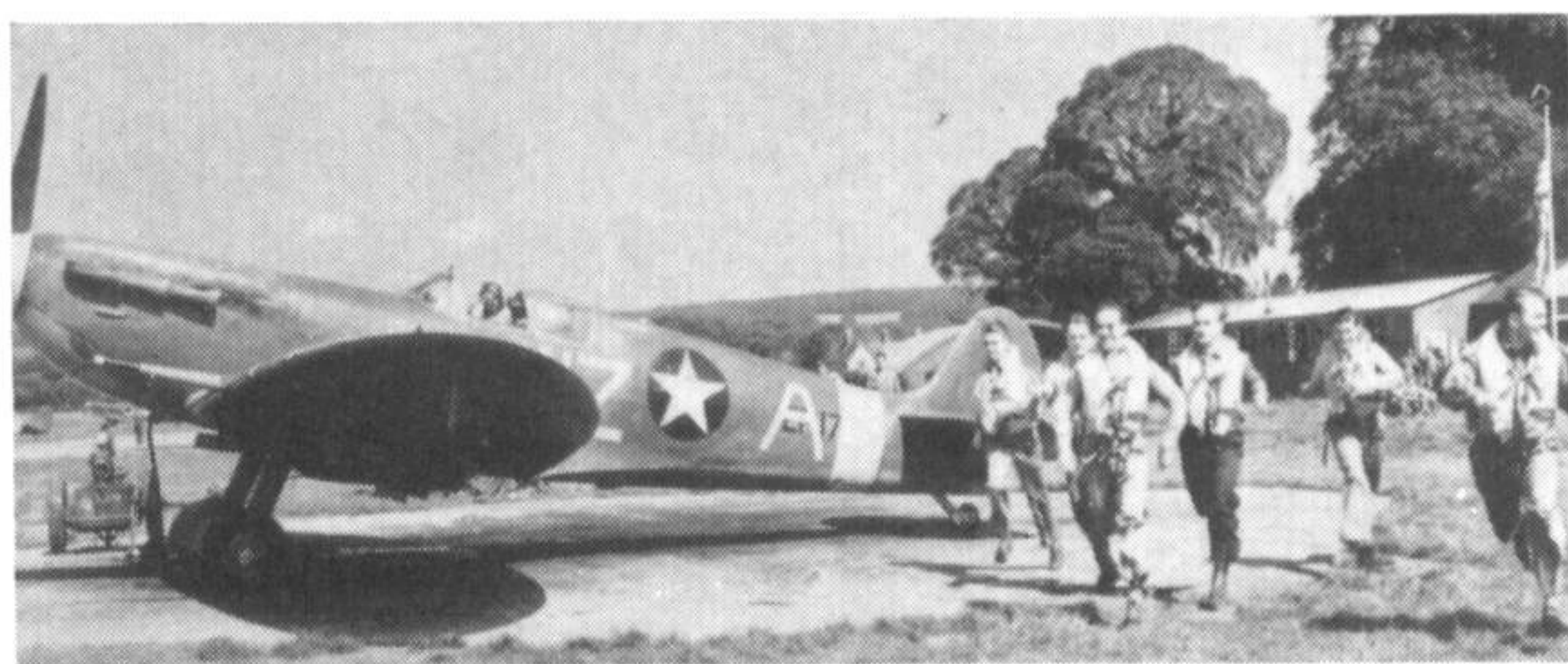
re-equip with more modern aircraft, so that by March 1945 the Greek and Yugoslav squadrons were the only remaining units with the Spitfire V in the Mediterranean. Other countries had meanwhile received the aircraft.

After a direct request from Stalin to Churchill in October 1942, the Spitfire VB was supplied to the Russians from Middle East stocks. By March 1943 one hundred and forty-three had been transferred, and were put into immediate service. They saw action along the Black Sea coast of the Caucasus, and others were allocated to the defence of Moscow. Later in 1943 some *Luftwaffe* pilots of JG 52 were somewhat surprised to encounter twenty-five of the Spitfires in an engagement near Orel, 200 miles south of Moscow.

Portugal also received the Mk. VB, about fifty being supplied from October 1943. Then in 1944 a number of Mk. VB's were sent to Turkey and finally, the Egyptian Air Force was given a few Spitfire Vc's towards the end of the war.

A common mishap with Spitfires; ER220 is a tropical Mk. VB from No. 92 Sqn. at Abouqir for overhaul.

(Photo: T. P. M. Cooper-Slipper)



American pilots, thought to be of the 309th Fighter Squadron, run to their Spitfire V's on an English airfield—in this case Debden in Essex.

A fighter-bomber Mk. Vc, JG871, in North West Africa.

(Photo: Imp. War Mus.)



THE FAR EAST

By the middle of 1942 the Australian continent was threatened by the Japanese, and No. 54 Squadron together with Nos. 452 and 457 (Australian) Squadrons of the R.A.F. were transferred from England. After some delays they were reformed as No. 1 Fighter Wing in the Darwin area. Their aircraft arrived in January 1943, being Mk. Vc's of the last batch built by Supermarine. The Wing was soon in action against the Japanese air forces, which started bombing attacks on Northern Australia in February. The Japanese escort fighter on these raids was the Mitsubishi Zero-Sen (Zeke) (see *Profile* No. 129) and, for the first time, the Spitfire could be outmanoeuvred by an opponent, although it had superior level and diving speeds. By June the Wing's aircraft were somewhat worn out, but the Japanese attacks had died down so that the remainder of the year was quiet. As replacement aircraft arrived, No. 2 Operational Training Unit received the Mk. Vc and began training pilots for the Spitfire VIII's that were delivered in 1944 when the three original squadrons relinquished their Mk. V's.

Meanwhile in Burma, Nos. 607 and 615 Squadrons received the Spitfire Vc in September 1943, followed shortly afterwards by No. 136 Squadron. They immediately established a much-needed air superiority over the Japanese, an additional opponent here being the Nakajima Ki-43 *Hayabusa* (Oscar) (see *Profile* No. 46) which, although being very manoeuvrable, was much slower, under-gunned, and very fragile. However, the Spitfire V's were soon replaced by Mk. VIII's, which began arriving in January 1944.

UNITED KINGDOM, 1943—1945

At home, production of the Spitfire Vc continued in 1943, Castle Bromwich producing their last aircraft, *MH646*, in August and Westland continuing until October, their last Mk. Vc being *EF753*. The final batches introduced metal-covered elevators featuring a modified horn-balance. Also, some of the 1,300



Spitfire VB's at Abadan prior to delivery to the Soviet Union, April 1943.

(Photo: Imp. War Mus.)



Spitfire VB BM635 of the American 67th Observation Group in March 1943. It still carries the letters WZ-Y from its previous unit—the 309th Fighter Sqn., 31st Fighter Group.

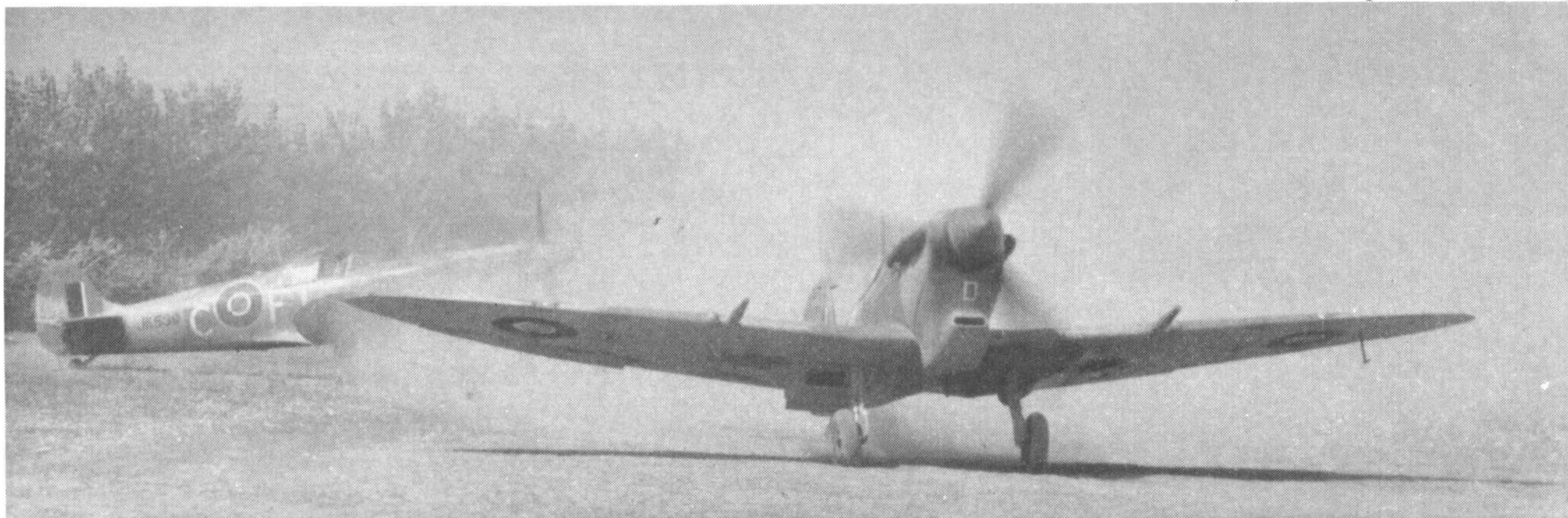
(Photo: Official U.S.A.F.)

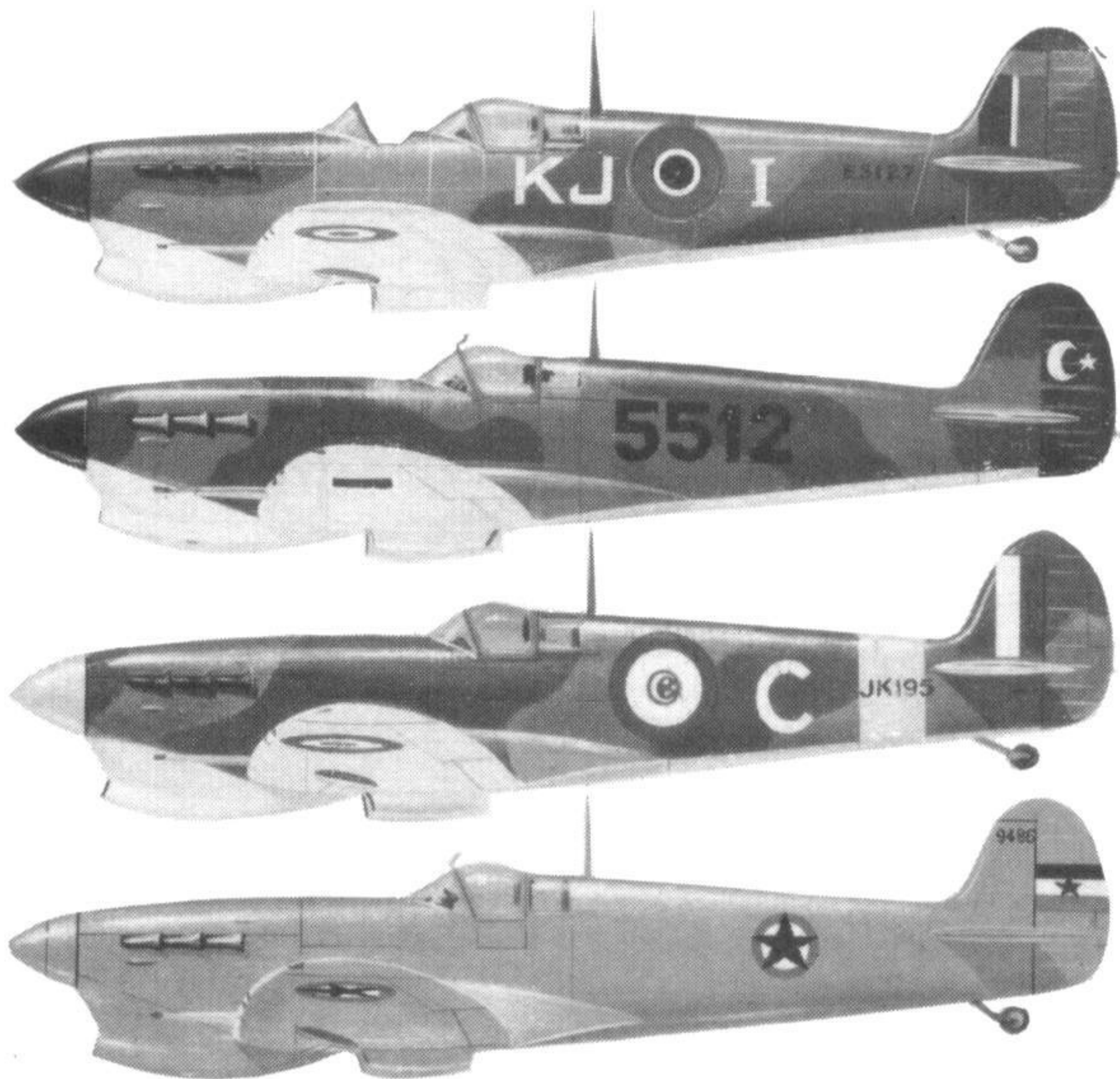
produced that year utilized the Merlin 50 series engine which had six exhaust stacks per side instead of the three of the Merlin 45. Nearly all these aircraft went overseas, the home squadrons using older aircraft.

In late 1942, some experiments were carried out to determine the maximum speed that could be attained with a Mk. V. One of the results of this testing was the clipped-wing, first flown on a Mk. VB, *W3248*. This modification increased the rate of roll to that of the Fw 190, and, fitted with a modified Merlin (45M, 50M or 55M), the new version was designated the Spitfire L.F. Mk. V. Most were of the "B" version, and all were converted from existing airframes at Maintenance Units. While the aircraft was, theoretically, more of a match for the Fw 190, it was heartily

Operating in the Naples area in 1943, the Spitfire Vc's of No. 43 Sqn. demonstrated the necessity for tropical filters.

(Photo: Imp. War Museum)





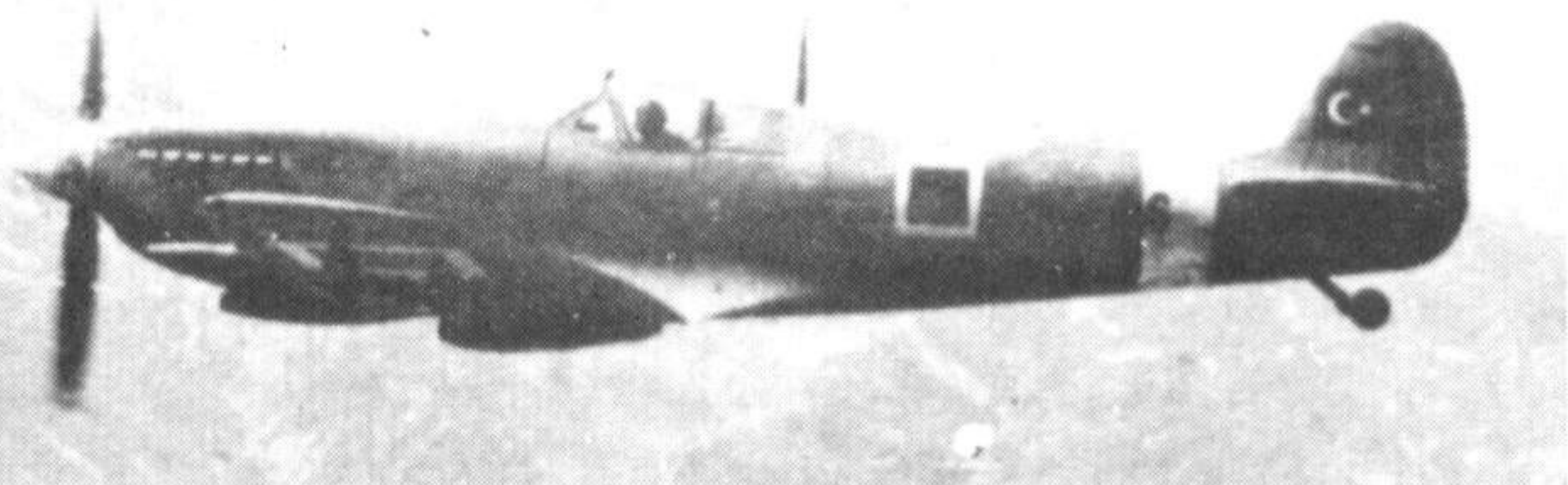
Top to bottom:

Spitfire Vc of No. 261 Squadron R.A.F.; Sicily, 1944. Used for liaison duties, second cockpit for batman. Serial E5127. Colours: upper surfaces sand and stone, blue under-surfaces, dark brown spinner, red fin tip, white code KJ-I, black serial.

Spitfire Vc of Turkish Air Force, 1942-3. Colours: upper surfaces dark sand and stone, blue under-surfaces, black spinner, red rudder, black code 5512, white crescent and star insignia, red square outlined in white—wing insignia.

Spitfire Vc of Egyptian Air Force, 1943. Colours: upper surfaces sand and stone, blue under-surfaces, sky spinner and fuselage band, white code C, black serial JK195. Green and white national markings.

Spitfire Vc of Yugoslavian Air Force; preserved aircraft, 1963. Colours: overall mid-grey; red, white and blue national markings, black code 9486 at top of fin.

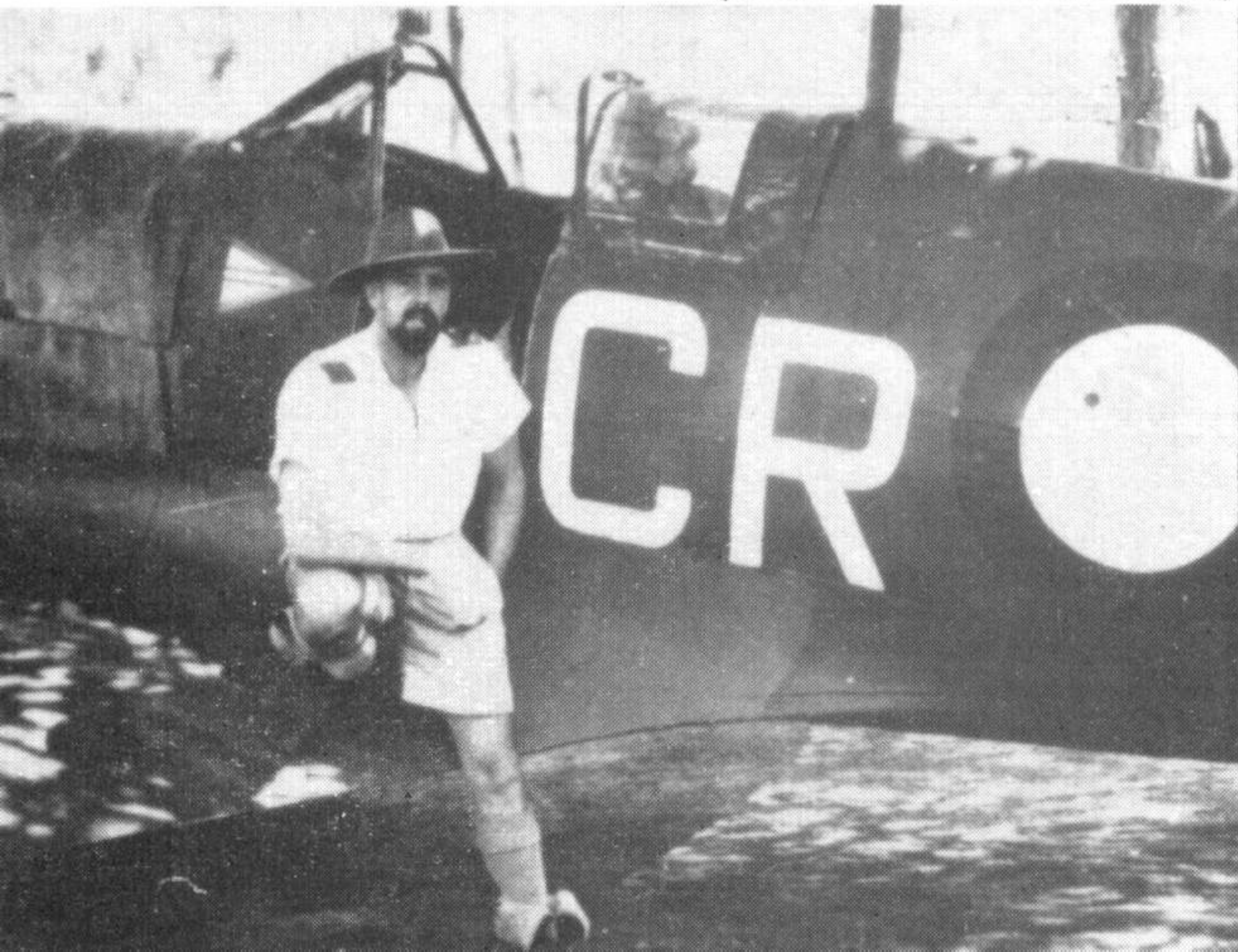


One of a number of tropicalised Mk. VB's supplied to Turkey in 1944, flying in the colours of the Turkish Air Force.

(Photo: H. J. Nowarra)

Wg.-Cdr. Clive R. Caldwell, probably the most celebrated of all Australian fighter pilots, with one of the four Spitfire Vc's he flew as leader of No. 1 Fighter Wing at Darwin in 1942-43.

(Photo: via W. A. Musciano)



SPECIFICATION

Vickers-Armstrongs Supermarine Type 349 Spitfire Mk. V. General: Span, 36 ft. 10 in. (L.F.V, 32 ft. 2 in.). Length, 29 ft. 11 in. (later production 30 ft. 2½ in.). Height, 11 ft. 5 in. (propeller vertical). Wing Area (gross), 242 sq. ft. (L.F.V, 231 sq. ft.). Wing Section, NACA 2213 (root), 2208 (tip). Fuel capacity, 85 Imp. gal. internal, plus 30, 40 or 90 Imp. gal. external fuel tank.

Weights, empty/normal loaded (lbs.): V_A, 4,960/6,237. V_B, 5,065/6,630 (30 gal. tank). V_C, 5,100/6,785 (30 gal. tank). L.F.V_B, 5,050/6,615 (30 gal. tank).

Note: The V_C had a maximum limit of 8,600 lbs. for gentle manoeuvres only.

Engine: Rolls-Royce Merlin 45, 50, 55 (1,470 h.p. at 9,250 ft.); 46, 50A, 56 (1,415 h.p. at 14,000 ft.); 45M, 50M, 55M (1,585 h.p. at 2,750 ft.).

Fitment: Mk. V_A, Merlin 45; V_B, Merlin 45 or 46 and a few retrofits of the 50, 50A, 55, or 56; V_C, Merlin 45, 46, 50, 50A, 55 or 56; L.F.V, Merlin 45M, 50M, or 55M.

Armament: V_A, eight .303 in. Browning machine guns with 350 r.p.g. V_B, two 20 mm. cannon with 60 r.p.g. and four .303 in. machine guns with 350 r.p.g. V_C, normally "B" type but with 120 r.p.g. for cannon. Some with four 20 mm. cannon. No known examples with "A" type armament. L.F.V, "B" type with 60 or 120 r.p.g. for cannon, depending upon original version when converted.

Bombs: V_B and V_C, two 250 lb. bombs, or one 500 lb. bomb.

Performance: Maximum speeds: V_A, 376 m.p.h. at 19,500 ft. V_B, 369 m.p.h. at 19,500 ft. V_C, 374 m.p.h. at 13,000 ft. L.F.V_B, 357 m.p.h. at 6,000 ft. Maximum range, 470 miles (internal fuel); 1,135 miles (with 90 gal. external tank) (Mk. V_C). Maximum rate of climb, 4,750 f.p.m. at sea-level (L.F.V_B). Service ceiling, 37,000 ft. (Mk. V_C).

Note: All performance figures varied on most aircraft according to altitude, weight, aircraft age, pilot-handling, and in the case of range, the speed. Therefore only representative figures are given above.

Key to colour illustrations on facing page:

A.—Spitfire Vc flown by Wing Commander Clive R. Caldwell, Wing Leader No. 1 Fighter Wing, Royal Australian Air Force (popularly known as "the Churchill Wing"); Darwin, Australia, 1942-43. Serial BS234.

A1.—Wing Commander's pennant, under cockpit.

A2.—Wing.-Cdr. Caldwell flew four Spitfire V's from Darwin, two being maintained at "readiness" and two at "stand-by" at all times. The white fuselage band was applied to his aircraft for a brief period; the serials were BS234, BS295, LJ394 and LJ395.

B.—Spitfire Vc flown by Wing Commander Caldwell as Wing Leader of No. 1 Fighter Wing at Darwin in 1943; one of the few Spitfires to be flown on operations in natural metal finish. Serial BS295.

C.—Spitfire VB of No. 303 "Kosciuszko" (Polish) Squadron, R.A.F.; United Kingdom, 1942. Note Polish insignia on cowling and squadron insignia under cockpit. Serial AR335.

C1.—No. 303 Sqn. R.A.F.; the insignia is that of the famous No. 111 "Kosciuszko" Sqn., Polish Air Force.

D.—Spitfire VB of No. 317 "Wilno" (Polish) Squadron, R.A.F.; U.K., 1943. Note non-standard fuselage roundel, and "Poland" lettered in white capitals under national insignia on cowling. Serial W3790.

D1.—No. 317 Sqn. R.A.F.; the insignia is that of No. 152 Sqn., Polish Air Force.

D2.—Poland, national insignia.

E.—Spitfire VB of No. 312 (Czecho-Slovak) Squadron, R.A.F.; U.K., 1944. Note Czech insignia under cockpit. Serial EP660.

E1.—Czechoslovakia, national insignia.

F.—Spitfire VB of No. 132 "City of Bombay" Squadron, R.A.F.; Normandy invasion, summer 1944. Serial W3560.

F1.—Turkey, national insignia; carried in four wing positions and in some cases two fuselage positions on Turkish Air Force Spitfire V's.

G.—Spitfire Vc specially lightened and modified to intercept high-flying Junkers Ju 86P-2 reconnaissance aircraft over Egypt in the spring of 1942. Notable points include four-blade Rotol airscrew, Abouquir filter, absence of radio mast, and armament of two .50 calibre machine guns only; also note "Irene" painted in black script under cockpit. The aircraft was flown by Flying Officer G. W. H. Reynolds and based at Abouquir. Serial BR114.

G1.—Yugoslavia, national insignia; carried in four wing and two fuselage positions.

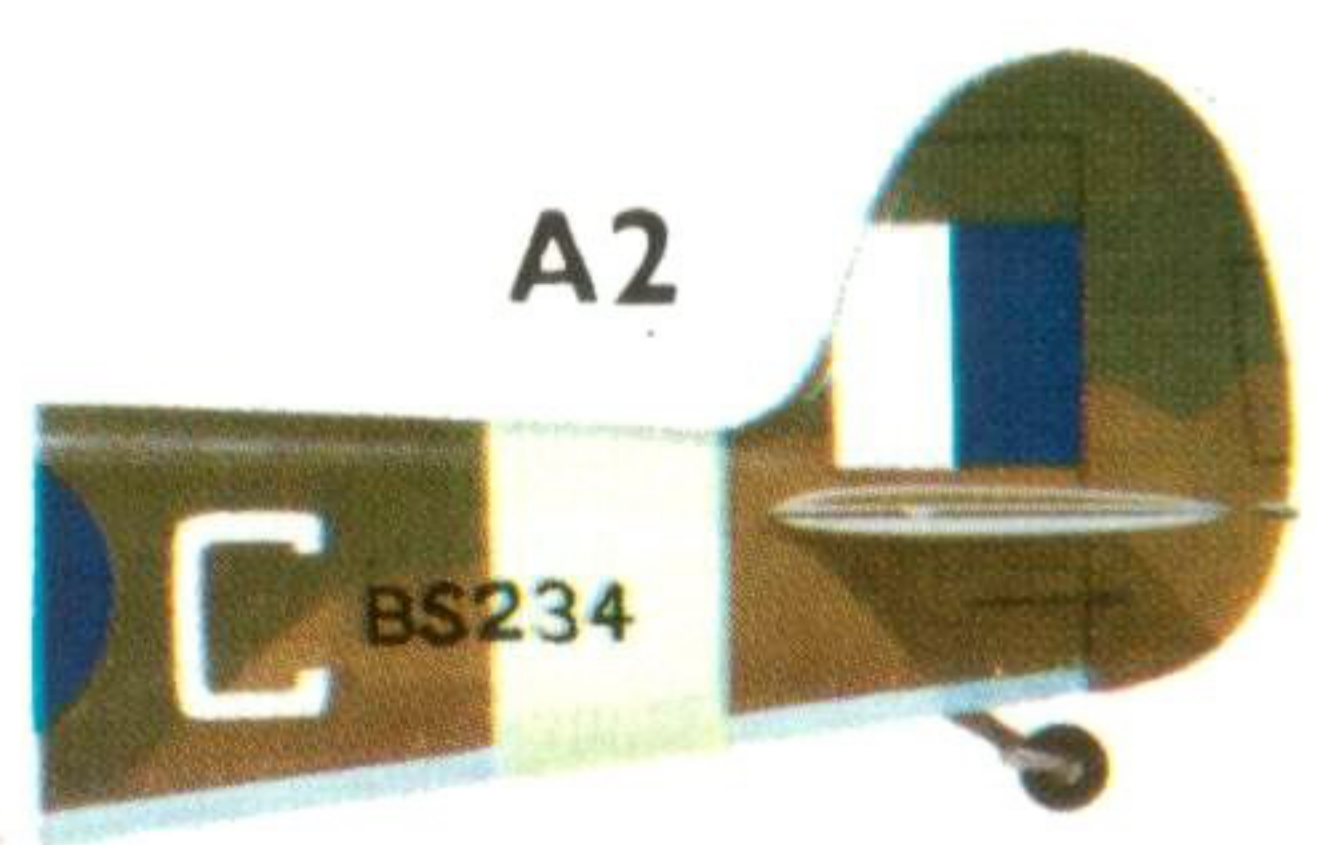
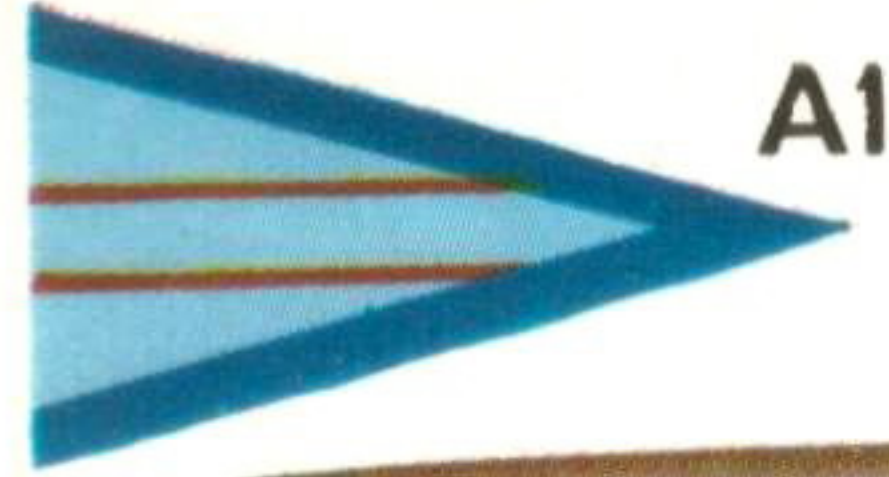
H.—Spitfire VB of No. 2 Squadron, South African Air Force, No. 7 S.A.A.F. Wing, No. 211 Group, Desert Air Force; N.A.T.A.F., Palermo, Sicily, August 1943. Serial obscured.

H1.—Adaptation of No. 7 S.A.A.F. Wing insignia.

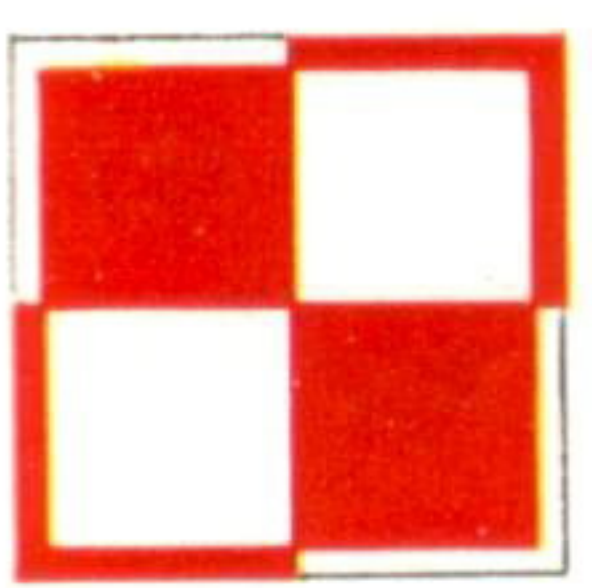
I.—Spitfire VB of 5th Fighter Squadron, 52nd Fighter Group, U.S.A.A.F.; North Africa, winter 1942-43. Serial ER120.

J.—Spitfire VB of 20 Gruppo C.T., 51 Stormo C.T., Italian Co-Belligerent Air Force; Canne, Italy, October 1944.

J1.—51 Stormo C.T.



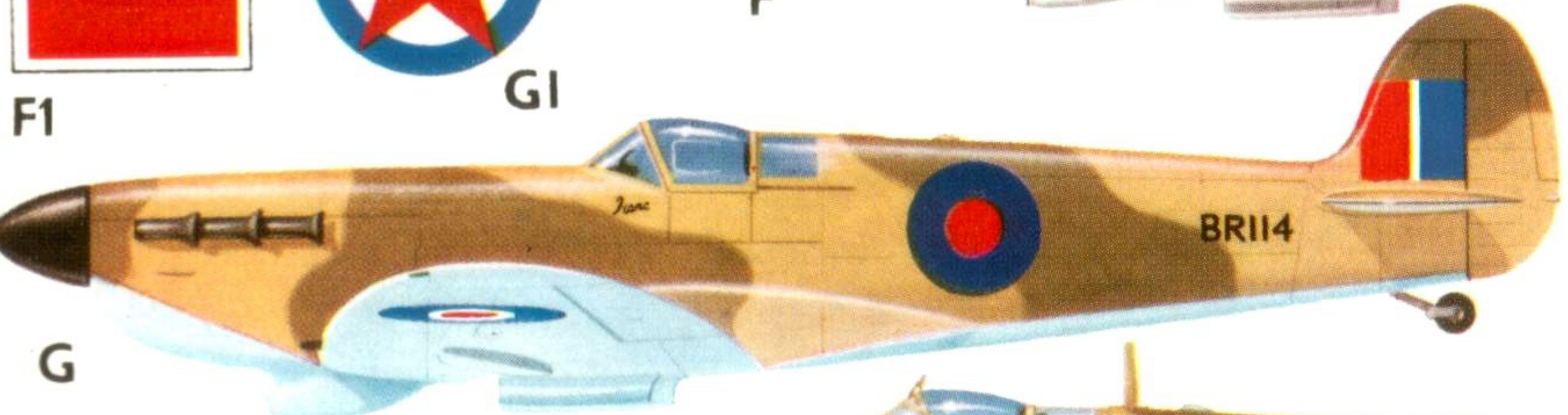
D1
D2



F1



G1



H1



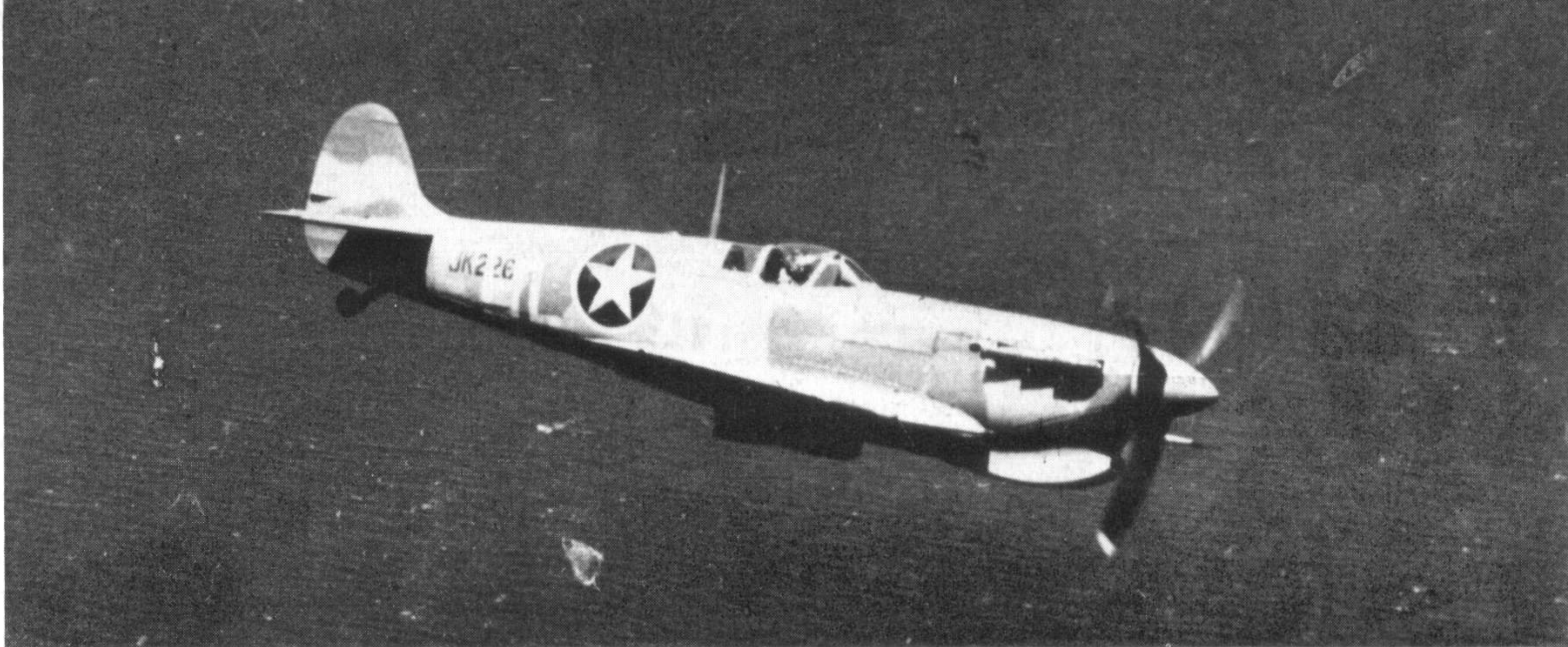
I1



J1



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A tropical Mk. Vc, JK226 HL-AA of the 308th Fighter Sqn., 31st Fighter Group U.S.A.A.F. off the North West African coast.

(Photo: Imp. War Mus.)

disliked by most pilots who flew it. They referred to it as "clipped, cropped, and clapped," "cropped" referring to the supercharger blades of the "M" Merlins, and "clapped" to the age of the aircraft. It was also incorrectly designated the Mk. V_D by some units. In an attempt to get maximum speeds, some squadrons (e.g., Nos. 316 and 611) polished their aircraft. They were used from the spring of 1943 mainly for ground strafing and low altitude escort for the U.S.A.A.F. medium bombers preparing for the Invasion of France, which was to come in June 1944. By that time only five fighter squadrons were using the Mk. V.

On D-Day, 6th June, two squadrons of Spitfire V's, Nos. 26 and 63, were part of the Air Spotting Pool, a composite R.A.F. and Royal Navy unit that provided gunfire direction for the warship bombardment of the French coast. Some of the Spitfires were flown by pilots of the U.S. Navy, since that service provided much of the bombardment.

By September no Mk. V's remained in front-line service but, by this time, the aircraft was in extensive use by second-line squadrons and Operational Training Units. A few Air Sea Rescue squadrons were partially equipped with the Mk. V during the latter half of 1944 and others were used for meteorological duties. Two squadrons, Nos. 595 and 667, continued to use some Mk. V's for anti-aircraft co-operation flights until after the war ended in May 1945.

One of the last experimental modifications was the conversion of a few Mk. V_B's as pilotless "drone" aircraft for gunnery targets. The work was carried out in 1945 by M. L. Aviation Ltd., but none were actually flown in their pilotless rôle. Also in that year some seventy V_B's were supplied to the French Air Force for training purposes.

In March 1948 the remaining Mk. V's in R.A.F. storage were scrapped, but a number of Portuguese Spitfires continued in use until the early 1950's.

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From October 1943 onwards, about fifty Mk. V_B's were supplied to Portugal; some served into the early 1950's.

(Photo: Estado Maior de Força Aérea)

